MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2017/2018

TMS3371 – MULTIMEDIA SYSTEM DESIGN

(All sections / Groups)

5 MARCH 2018
9:00 a.m – 11:00 a.m
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 2 pages with 5 Questions only.

2. Attempt **ALL** questions. All questions carry equal marks and the distribution of the marks for each question is given.

3. Please print all your answers in the Answer Booklet provided.

Question 1 [10 marks]

A. An audio file is sampled at 44 KHz using 16-bit resolution and stereo.
   i. If the duration of this audio file is 35 seconds, calculate its size. (2 marks)
   ii. If this audio file is down sampled to 11 KHz at 8-bit resolution and monophonic, calculate the compression ratio. Assume that the audio duration remains the same i.e. 35 seconds. (2 marks)

B. One way to reduce video file size is to use compression.
   i. Briefly explain how interframe compression works. (2 marks)
   ii. Identify two other ways to reduce video file size. (2 marks)

C. List and describe the two categories of multimedia systems. (2 marks)

Question 2 [10 marks]

A. List and explain the three types of prototyping approaches in multimedia system design. (3 marks)

B. State any four functions or modules that are required to develop a fully functional e-commerce solution. (2 marks)

C. Describe the three layers of the Hypertext Abstract Machine (HAM) model. (3 marks)

D. State four other models that can be used for designing hypertext/hypermedia system besides HAM. (2 marks)

Question 3 [10 marks]

A. You have been asked to develop an interactive digital advertisement system for a company. It will be projected on a digital whiteboard and will responds to users' touch by displaying related information about the products being advertised.
   i. List the steps of the Interactive Multimedia System Design and Development (IMSDD) that you will use to develop this system. (2 marks)
   ii. Briefly describe how you will apply each step of IMSDD in developing the system and include your assumptions where applicable. (4 marks)

B. What is the use of metaphors in interface design? Provide an example. (2 marks)

C. State any two guidelines for interface design. (2 marks)

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Question 4 [10 marks]

A. Describe the five usability attributes according to Nielson (1993). (5 marks)

B. A management tool can provide various key information of large distributed multimedia systems on the web.
   i. State one example of management tools. (1 mark)
   ii. Give four types of key information that can be provided by management tools. (4 marks)

Question 5 [10 marks]

A. State two advantages of using Object Oriented Hypermedia Design Model (OOHDM) as the design model for hypermedia. (2 marks)

B. Describe the four main steps of OOHDM. (4 marks)

C. List the three key elements of Unified Modelling Language (UML) in Multimedia System Design. (3 marks)

D. What diagram is used to capture the requirement of a system in UML? (1 mark)

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